

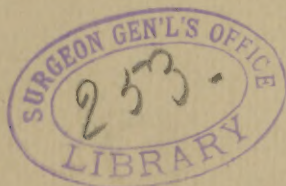
Vance (A. M.)

Cases in Orthopædic Surgery.

BY ✓

AP MORGAN VANCE, M. D.,
LOUISVILLE, KY.

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CASES IN
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MR. PRESIDENT AND LADIES AND GENTLEMEN OF THE KENTUCKY STATE MEDICAL SOCIETY: As your Committee on Orthopædic Surgery, I submit the following cases in operative orthopædy as my report, prefaced by a few remarks in justification of the procedures in three of the cases.

The ailment known as infantile paralysis is, and always has been, the dread of the orthopædist. It is productive of almost half the cripples we meet, and is dreadful because of the meager results attained by treatment, most of the authorities now holding that all relief derived comes spontaneously, and the effects of treatment other than that to prevent deformity and to promote locomotion are nil. This has certainly been my experience so far in the effort to revive the muscles which are lost.

The use of mechanical appliances for the purpose of gaining the above-mentioned results is very unsatisfactory for a number of reasons.

If we make apparatus strong enough to render constant breaking less liable, it will be too heavy for the weakened

* Read before the Kentucky State Medical Society, June 25, 1885.

patient to manipulate at all, hence most patients soon discard braces, either because of this or from their inability to bear the expense of constant renewal. Deformity soon takes place, and, as the patient grows older and heavier, hopeless crippling is inevitable.

How many of these persons are daily seen on our streets! some unable to help themselves at all, others showing every degree of deformity with more or less disability. The mechanical surgeon, therefore, is constantly on the alert for new suggestions toward treatment.

It has been suggested, I believe, in England, and in some cases acted upon, though the results have not been reported, that the residue of the paralyzed muscles have a section removed, thus gaining by an inelastic band better control of the joint below. It has also been recommended, whether carried out yet or not I am unable to say, that in some forms of talipes calcaneus, for instance, the tendo Achillis be resected, thus gaining an inelastic band, as mentioned above. The third suggestion, and the one I have taken advantage of, is to excise the useless joint and produce bony ankylosis, thus doing by bone what we attempt to do by apparatus.

This seems at first glance to be very bold surgery, but, when we look first at the utter hopelessness of these unfortunates, and at the fact that the joints are alive and the bone in young subjects healthy, we may hope for less risks than when we get our prognosis from statistics of excisions where bone disease exists. The greatest difficulty is the gaining of the patient's consent. No surgeon should ever perform any grave operation which is proposed for convenience without making the patient cognizant of the risks he is undergoing. First, because it is not right; secondly, because if it fails and the possibility of failure has not been explained, it renders surgery too unpopular in that neighborhood.

The authorities for this class of operations are very

meager. In the latter part of 1881 I saw it mentioned in a journal that Volkmann had suggested this procedure for the knee and ankle where the muscles of the hip were left, and that four or five operations had been done, with what results I have not yet learned.

Not until May, 1882, did I succeed in getting a patient to consent to the operation.

CASE I.—*Boy, aged Nine, Subject of Extreme Valgus from Infantile Paralysis; Unsatisfactory Use of Apparatus for Several Years; Artificial Ankylosis produced, with Good Locomotion resulting.*—Ed. Lawrence, aged nine, of German parentage, came under my care as a dispensary patient in the early part of 1882, giving the usual history of infantile paralysis occurring at two years of age. Both limbs were at first affected spontaneously, recovery taking place to such an extent that only partial paralysis of the left lower extremity remained, producing, as the cut will show, a bad valgus.

He had been treated by various physicians, and had worn all forms of apparatus without material benefit either as to the cure of the paralyzed muscles or to locomotion.

At the first examination I proposed the operation of excision of the ankle joint for the purpose of causing stiffness in the best position for future usefulness, thus getting rid of all braces, which had been faithfully tried.

Not for several months did I gain the consent of the parents to the procedure, but finally, finding the foot fast assuming a worse position as the boy grew heavier, and the brace more often out of repair, consent was obtained.

On May 13, 1882, the operation was done, Dr. J. W. Holland administering the chloroform, and several other professional friends being present. A well-fitting, adjustable splint, made of leather and hard rubber, had been prepared to receive the limb.

The first step, after applying Esmarch's bandage to the limb, was to make an incision, some three inches long, half way between the internal malleolus and the tendon of the tibialis-an-

ticus muscle in the axis of the extended foot, the center of the incision being over the annular ligament.



FIG. 1 (CASE I).—Before excision of the ankle joint.

When the joint was reached was it was opened and the foot broken off the tibia, the ends of this bone and the fibula being



FIG. 2 (CASE I).—After excision of the ankle joint.

sufficiently exposed to allow of their being removed with the ordinary amputating saw; then the upper surface of the astragalus was shaved off with a stout bistoury through the cartilage and sufficiently into the bone to insure that enough surface would be freshened to produce bony union with the tibia and fibula. The wound was closed with stitches, a counter-opening being made for a rubber drainage-tube. No bleeding being present except from the shaved surface of the astragalus, this was stopped only after bruising the surface with the handle of the bistoury.

Surgical fever in this case ran as high as 102° F., but no very alarming symptoms occurred, and within three weeks the external wounds were closed. I think this would have occurred earlier had it not been for the great secretion of synovia, which caused the wound to open several times.

Three years have now elapsed, and this boy has been able to walk without apparatus and with no inconvenience. There is at this date three quarters of an inch shortening of that limb, with bony union of the astragalus to the tibia and fibula.

A mistake was made at the first dressing of the foot by placing it in slight extension, hoping thereby to more easily overcome the effects of shortening by simply extending the heel of this shoe. I believe this makes him step off this foot in valgus still, despite the fact that the foot was set in varus; and has produced, by the greater strain, weakening of the ligaments anterior to the astragalo-tibial junction. From this mistake, the result is not so good as it would have been if the foot had been placed at right angles, though the result obtained decidedly justifies the means.

CASE II.—*Boy, aged Seven; Subject of Infantile Paralysis, of Six Years' standing; Partial Spontaneous Recovery of One Limb, the other almost completely Powerless and Greatly Deformed; No Locomotion without Crutches; Excision of Right Knee followed by Bony Ankylosis, with Relief of Deformity and Great Improvement in Walking.*—Charley Hadfield, aged

seven; subject of infantile paralysis since ten months of age, both lower extremities being affected; the left had spontaneously improved to such an extent that, comparatively speaking, it had become quite useful.



FIG. 3 (CASE II).—Before excision of the knee joint.

Many forms of apparatus had been worn and every known treatment had been tried, and, from the history, I should judge very faithfully.

The photographs will better show this child's condition than

I can by any written description. Suffice it to say, as the boy grew older he more fully realized his helpless condition, and kept complaining that his father would not have anything done for his relief.

The case came under my observation three years before its last appearance, and I had then advised the operation afterward done. The father, remembering this, came again and consented to it, after understanding its full gravity and assuming his share of the responsibility.

I went so far as to let him hear a discussion upon the propriety of this form of operation by the members of the Medico-Chirurgical Society of Louisville, which was not at all favorable to its performance.

On October 21, 1884, after an open splint, made of leather and hard rubber, had been prepared, the operation was done in the presence of a number of professional friends, Dr. J. M. Ray administering the ether.

As shown by the photograph, the limb was greatly deformed, the leg flexed, rotated, and partially luxated outward and backward. On account of this deformity, the first step in the operation consisted in making an incision longitudinally along the inner border of the patella, having for its center the joint. Before turning the bones out to be sawed off the patella was removed, then the ligaments were divided and the ends of the femur and tibia easily exposed and removed with an amputating saw. There was no hæmorrhage, as in Case I, as the sawing closed the cancelli. The external ham-string was left untouched, it being the only muscle of the thigh which had any vitality left, and by its contraction had produced luxation and rotation of the tibia. This muscle served as a perfect tension band to hold the bone in apposition.

There was little or no shock following the operation, and the limb was at once placed in the splint. Ten hours after the patient was placed in bed the temperature was found to be 105° F. Reasoning that nothing but malaria developed by surgical procedure could produce such a fever as this in so short a time, quinine was used liberally with the effect desired, and had to be kept up for a considerable time.

The boy suffered little during his convalescence, and was confined in bed for eight weeks before the wound closed; during this whole time there was an excessive discharge of synovial



FIG. 4 (CASE II).—After excision of the knee joint.

fluid, as in Case I. His general health was much improved, as will be noticed by the difference in his appearance as shown by the photographs.

The only accident occurring during his convalescence was at about the end of the third month, when the wound and counter-opening reopened completely, following the formation of pus.

The child had been walking about with the convalescent plaster dressing still on, and had probably bruised the limb, or there was slight exfoliation of bone, causing the pus formation, which, being confined under the dressing, forced the wound open from end to end, instead of discharging, as is usually the case, from a small opening at the point of least resistance. Rapid healing soon took place, and the boy has been perfectly well since. Firm bony union now exists at the site of the knee, and the boy is able to stand without the aid of crutch or support of any kind, and can walk quite well.

The long confinement produced weakness of the left limb, but this is fast gaining strength by use. The action of the hip is pendulum-like, as there is little or no power to flex the thigh. The foot in this patient was in a state of equino-varus, and was straightened during his confinement. If a proper shoe is worn, no operative interference will be needed, as was at first anticipated.

CASE III.—*Case of Talipes Equino-Varus from Infantile Paralysis in a Young Woman aged Twenty-five; Complete Correction by Tenotomy and Retentive Apparatus; almost Complete Relapse after Four Years; Excision of Ankle Joint, with Correction of Deformity and Good Locomotion anticipated.*—February 6, 1885, Emma Moore, aged twenty-five, infantile paralysis of right lower extremity, resulting in talipes equino-varus. Four years ago, deformity relieved by tenotomy and retentive apparatus, which was used, until worn out, with comparatively good locomotion; then a rapid return of the deformity. At this second appearance excision of the ankle joint was proposed and readily, under the existing circumstances, consented to, as she was unable to get about at all.

The patient was placed in the City Hospital of Louisville, and the operation done before the medical classes, February 6,

1885, Dr. J. M. Ray giving ether. After the hæmostatic bandage was applied, a longitudinal incision was made, just anterior

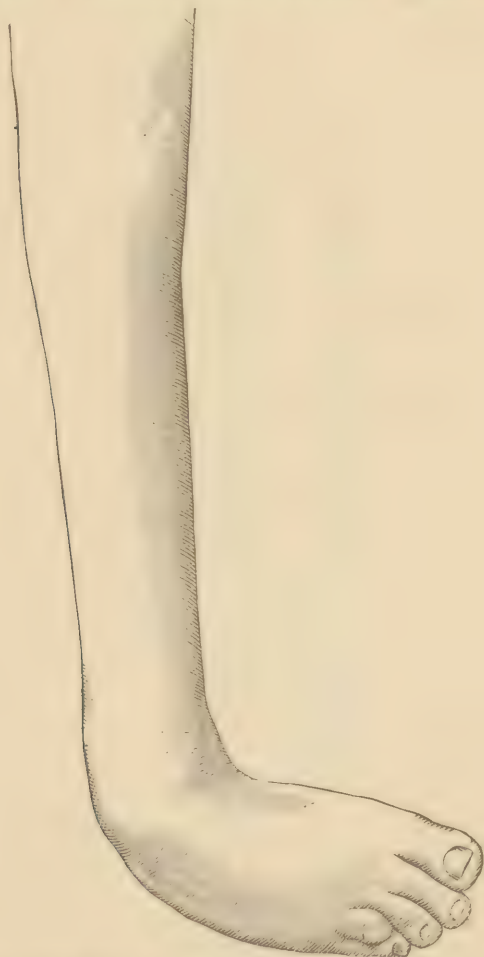


FIG. 5 (CASE III).—Before excision of the ankle joint.

to the external malleolus, about three inches in length; the tip of the fibula was snipped off with the bone-pliers to facilitate the breaking of the foot off the tibia, which was then easily ac-



FIG. 6 (CASE III).—After excision of the ankle joint.

complished, the articular cartilage being removed by an amputating saw from the tibia and by Hay's saw from the astragalus, there being little or no hæmorrhage, the ligaments acting as

tension bands to help hold the bones in apposition, as the hamstrings did in Case II.

An adjustable splint had been made to receive the limb and hold it at rest in the best position. Upon examination of the pieces of bone removed, quite a good deal of what appeared to be fatty degeneration was found in that taken from the tibia, while that from the astragalus appeared firm and healthy.

Prognostications of a fatal result from osteomyelitis and subsequent drain were freely made by my professional brethren present. Notwithstanding the many disadvantages in the way of surroundings and an intercurrent dysentery, she made a good recovery, the only surgical complication being the appearance, about the third week, of a diffuse cellulitis of the anterior part of the calf, yielding readily to treatment.

At the date of obtaining the photograph the patient was in splendid condition, the foot in good position, bony union between the astragalus and tibia secured, and she could bear her weight on this foot, though not allowed to walk on it yet, for fear of irritation and renewed suppuration.

CASE IV.—*Subcutaneous Osteotomy of the Femur below the Trochanter for Angular Deformity of Thigh from Hip Disease; the Great Crippling relieved and Good Locomotion obtained.*—June 11, 1884, Homer Colbert, aged nine years, the subject of spinal caries and true hip disease, both long since spontaneously cured, the hip being ankylosed by bone at an angle of less than 90° with the pelvis, the deformity resulting being greater because of the spinal disease in high dorsal region, which took up most of the power of compensation in the lumbar spine.

This boy could stand with difficulty by holding on to his left knee and right hip, but could not walk, his mode of locomotion being on all fours. The patient was an inmate of the Methodist Orphan Home, and ready consent to the operation was obtained; and, on the date mentioned, it was performed in the presence of the visiting physicians of the institution and several other professional friends. The patient was anesthetized by Dr. Senteny, and turned upon his right side. A block of marble, well padded, was pressed tightly upward on the inner side of the thigh as high as the perinaeum would allow. The



FIG. 7 (CASE IV).—Before the operation.



FIG. 8 (CASE IV).—After the operation.

chisel was entered just below the trochanter, the edge of the blade being in the axis of the limb. It was then sunk by steady pressure to the bone, then turned with the edge across the bone, and driven, with sharp strokes of the mallet, through until its hard substance on the other side was reached and partly entered. The direction was then changed and the same amount of cutting done in several directions until sufficient weakening had been produced to insure our being able to complete the fracture. Without removing the chisel, the edge of the padded block was placed opposite the chisel and rested on the table, thus acting as a fulcrum at the weakened point. The pelvis being fixed by an assistant, a quick and forcible depression of the lower end of the femur completed the fracture.

The chisel was then removed, and tenotomy of the muscles going to the anterior-superior spinous process of the ilium was done, when, without much difficulty, the limb was brought down and fixed in plaster of Paris, 90° of deformity being overcome. The wounds were dressed with compresses of absorbent cotton and the case was treated as a simple fracture, going on to conclusion without a bad symptom, the boy being able to walk at the end of five weeks. He walks now—when the second photograph is taken—any distance without difficulty, using an elevated shoe to compensate for about one inch and a half shortening of the affected limb.

CASE V.—*Deformity of Left Lower Extremity in a Young Man of Seventeen, the Result of Knee-Joint Disease of Many Years' Standing, relieved by Subcutaneous Osteotomy of Lower End of Femur.*—A. B., aged seventeen years, came under observation last November for treatment. There were the history and the evidence locally of an old inflammation of the left knee joint dating back to early childhood. The limb was greatly deformed, and he walked with painful inconvenience. The knee was found with very little motion, flexed at an angle of 135° , the leg being very much rotated in its relationship to the thigh; there was combined with this marked genu valgum. The compensating deformity of the foot being quite great and walking being painful, I was unable to get photographs in this as I did in the other cases.

The procedure of dividing the bone was exactly as in the preceding case, the final steps being much more difficult because of the limited motion at the knee, and the fear that it might be further damaged if too much strained by the use of the leg as a lever; but I succeeded by having the upper part of the bone fixed by a very strong assistant, then, grasping the condyles in both hands, with the application of sudden force downward, using the same fulcrum as before, the fracture was completed and the deformity overcome, after tenotomy of the external ham-string tendon. The limb was dressed in plaster and went on to firm union as a simple fracture.

The young man now walks anywhere without difficulty, and is the possessor, comparatively speaking, of a comely limb, a compensation of one inch and a half being added to the shoe.

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